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EXAMINER	
WANG, QUAN ZHEN	
ART UNIT	**PAPER NUMBER**
2633	

DATE MAILED: 07/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/973,697	BORODITSKY ET AL.	
	Examiner	Art Unit	
	Quan-Zhen Wang	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. More detailed descriptions for Figs. 14a and 14b are needed in order for one of ordinary skilled in the art to understand how the "routing properties of an Arrayed Waveguide Grating (AWG)" are utilized to stack a serial stream of packets and unstuck a composite packet. Two cited references (Page 16, Paragraph 73, Lines 10-14) do not explicitly explain how to stack a serial stream of packets to form a composite packet and unstuck a composite packet to a serial stream of packets using "the routing properties of an AWG".

The examiner respectfully reminds the applicants that no new subject matter may be added.

2. The disclosure is objected to because of the following informalities: "... a time slots ..." in claim 19, lines 3-4 seems should read "... a time slot ...".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation: "The method according to claim 1, further comprising the step of decomposing the dropped composite packet into is constituent packets." However, it is not clear what the cited limitation means.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-2, 5-7, 9, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Hui Zang et al. (Photonic slot routing in all-optical WDM Mesh Networks, Global Telecommunications Conference –Globecom'99).

Regarding claim 1, Zang teaches a method for providing high connectivity communication over a Time Division Multiplexed and Wavelength Division Multiplexed (WDM) packet-switched optical ring network (fig. 2) having a plurality of nodes (fig. 2, nodes 0-5) connected thereto comprising the steps of: creating, at node A of the plurality of nodes, a composite packet (section 1 Introduction; and section 2 Network Architecture); dropping from the network, at node A, a composite packet that is destined

for the node A (section 2 Network Architecture); adding into the network the composite packet created by the step of creating; and routing over the network the composite packet added into the network by the step of adding (section 2 Network Architecture; and section 3, PSR Protocols).

Regarding claim 2, Zang further teaches to add composite packet into an empty photonic time slot of the network (section 2 Network Architecture; and section 3, PSR Protocols).

Regarding claim 5, Zang further teaches generating a plurality of packets each packet being generated at a different wavelength; and stacking the plurality of packet (section 1 Introduction).

Regarding claim 6, the connection between any nodes in the ring network taught by Zang (fig. 1) can be considered a point-to-point network, for example, the nodes 0 and 1 form a point-to-point network.

Regarding claim 7, Zang further teaches that the step of dropping takes place by operation of a control signal at an optical switch of the node A (fig. 1).

Regarding claim 9, Zang further teaches that the dropped composite packet is dropped by the step of dropping from a photonic time slot (section 1 Introduction; and section 2 Network Architecture).

Regarding claim 11, Zang further teaches that dropping a composite packet occurs during a time slot, and the adding the composite packet create by the step of creating occurs during the time slot (section 1 Introduction; and section 2 Network Architecture).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 3-4, 12, 14-16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hui Zang et al. (Photonic slot routing in all-optical WDM Mesh Networks, Global Telecommunications Conference –Globecom'99) in view of Sasayama et al. (U.S. Patent 5,486,943).

Regarding claim 3, as it is understood in view of the above 112 problem, the system of Zang differs from the claimed invention in that Zang does not specifically teach that the method further comprising the step of decomposing the dropped composite packet into constituent packets. However, it is well known in the art to decomposing the dropped composite packet into constituent packets in order to extract information carried by each constituent packet. For example, Sasayama discloses to decompose the dropped composite packet into constituent packets (figs. 9-10, column 8, lines 37-43). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate decomposing means in the system of Zang, as it is taught by Sasayama, to decompose the dropped composite packet into constituent packets in order to extract information carried by the composite packets by different wavelength packets.

Regarding claim 4, the system of Zang differs from the claimed invention in that Zang does not specifically teach that the method further comprising the step of decomposing the dropped composite packet into a partial composite packets. However, it is well known in the art to decomposing the dropped composite packet into. For example, Sasayama discloses to decompose the dropped composite packet into constituent packets (fig. 20, column 13, lines 57-67 and column 14, lines 1-8). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate decomposing means in the system of Zang, as it is taught by Sasayama, to decompose the dropped composite packet into a partial composite packets in order to extract information carried by the composite packets by different wavelength packets designated for the node and forward other packets to appropriate nodes.

Regarding claims 12, 14, the system of Zang differs from the claimed invention in that Zang does not specifically teach that the method further comprising the step of unstacking the composite packet dropped by the dropping to form a set of individual packets, each at its own wavelength, and output sequentially in time. However, it is well known in the art to unstack the dropped composite packets into constituent packets, each at its own wavelength in order to extract information carried by each constituent packet. For example, Sasayama discloses to decompose the dropped composite packet into constituent packets (figs. 9-10, column 8, lines 37-43), each at its own wavelength, and output sequentially in time. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate

decomposing means in the system of Zang, as it is taught by Sasayama, to decompose the dropped composite packet into constituent packets, each at its own wavelength, and output sequentially in time, in order to extract information carried by the composite packets by different wavelength packets.

Regarding claim 15, the system of Zang differs from the claimed invention in that Zang does not specifically teach a specific delay method to create a composite packet. However, Zang discloses that the "data is transmitted in the form of photonic slots which are fixed in length and span all wavelengths in the network" (section 1 Introduction); Sasayama discloses to manipulate packets by applying proper delays (figs. 9-10, column 8, lines 37-43). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to apply appropriate time delays, as it is taught by Sasayama, for individual packets at different wavelength in order to create the composite packets occupying the same time slot and span all wavelengths in the network.

Regarding claim 16, Zang teaches a method for providing high connectivity communication over a packet-switched optical network having a plurality of nodes connected thereto comprising the steps, at one of the plurality of nodes, of: (a) dropping from the ring network in a photonic time slot, a composite packet; (c) create a composite packet from one or more sets of packet signals, added to other packets; and (d)adding the created composite packet to the ring network (section 1 Introduction; and section 2 Network Architecture). The system of Zang differs from the claimed invention in that Zang does not specifically teach to partially unstacking the dropped composite.

However, it is well known in the art to decomposing the dropped composite packet into a partial composite packets. For example, Sasayama discloses to decompose the dropped composite packet into constituent packets (fig. 20, column 13, lines 57-67 and column 14, lines 1-8). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate decomposing means in the system of Zang, as it is taught by Sasayama, to decompose the dropped composite packet into a partial composite packets in order to extract information carried by the composite packets by different wavelengths designated for the node and forward other packets to appropriate nodes.

Regarding claim 19, Zang teaches a method for communicating in a network comprising the steps of: carrying over the network composite photonic packets, each of which occupies a time slot and a given set of wavelengths; coupling composite packets between the network and information handling module (section 1 Introduction; and section 2 Network Architecture). Zang differs from the claimed invention in that Zang does not specifically teach to transforming information between non-composite packets and composite packets by use of an unstacking technique. However, it is well known in the art to unstack the dropped composite packets into constituent packets, each at its own wavelength in order to extract information carried by each constituent packet. For example, Sasayama discloses to decompose the dropped composite packet into constituent packets (figs. 9-10, column 8, lines 37-43). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to transforming information between non-composite packets and composite packets by

use of an unstacking technique, as it is taught by Sasayama, in order to extract information carried by the composite packets by different wavelength packets.

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hui Zang et al. (Photonic slot routing in all-optical WDM Mesh Networks, Global Telecommunications Conference –Globecom'99) in view of Adams et al. (U.S. Patent 6,748,175 B1).

Regarding claim 8, the system of Zang differs from the claimed invention in that Zang does not specifically teach that the dropped composite packet is further distributed to a plurality of user sites connected to the one of the plurality of nodes by using WDM techniques according to the constituent wavelengths of the composite packet. However, it is well known in the art to further distributed to a plurality of user sites connected to the one of the plurality of nodes by using WDM techniques. For example, Adams teaches to further distribute packets dropped from the packet backbone network (fig. 1) 140 by using WDM techniques (Hub 130, fig. 2) to a plurality of nodes (110, 111, and 112). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a information distribution method, such as the one taught by Adams, into the system of Zang in order to send information to each designated individual users.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hui Zang et al. (Photonic slot routing in all-optical WDM Mesh Networks, Global

Telecommunications Conference –Globecom'99) in view of Adams et al. (U.S. Patent 6,748,175 B1) and further in view of Mizrahi (U.S. Patent US 5,748,349).

Regarding claim 10, the modified system of Zang and Adams differs from the claimed invention in that Zang and Adams do not specifically teach that the WDM techniques employ a fiber Bragg grating. However, a fiber Bragg grating is well known in the art and it is one of the essential components of a WDM network that is widely used for many different purposes. For example, Mizrahi disclose an optical add-drop multiplexer employing fiber Bragg gratings. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to employ a fiber Bragg grating in the modified system of Zang and Adams in order to drop optical packets from the network.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hui Zang et al. (Photonic slot routing in all-optical WDM Mesh Networks, Global Telecommunications Conference –Globecom'99) in view of Sasayama et al. (U.S. Patent 5,486,943) and further in view of Adams et al. (U.S. Patent 6,748,175 B1).

Regarding claim 13, the modified system of Zang and Sasayama differs from the claimed invention in that Zang and Sasayama do not specifically teach that a set of individual packets simultaneously appears over a set of outputs. Adams teaches that a set of individual packets simultaneously appears over a set of outputs using a WDM demultiplexer (fig. 2, DMUX 235). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a WDM

demultiplexer in the system of Zang and Sasayama, as it is taught by Adams, to decompose the dropped composite packet into packets with individual wavelengths in order to detect the information carried by the composite packets.

12. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hui Zang et al. (Photonic slot routing in all-optical WDM Mesh Networks, Global Telecommunications Conference –Globecom'99) in view of Sasayama et al. (U.S. Patent 5,486,943) and further in view of Mizrahi (U.S. Patent US 5,748,349).

Regarding claim 17 and 18, the modified system of Zang and Sasayama differs from the claimed invention in that Zang and Sasayama do not specifically teach that the WDM techniques employ a fiber Bragg grating or a tunable fiber Bragg grating. However, a fiber Bragg grating or a tunable fiber Bragg grating is well known in the art and it is one of the essential components of a WDM network that is widely used for many different purposes. For example, Mizrahi disclose an optical add-drop multiplexer employing fiber Bragg gratings, Mizrahi further discloses that some of the fiber Bragg gratings are tunable (column 7, lines 5-9). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to employ a fiber Bragg grating or a tunable fiber Bragg grating in the modified system of Zang and Sasayama in order to drop optical packets from the network.

Response to Arguments

13. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Milton et al. (U.S. Patent 6,084,694) disclosed a WDM optical ring network with a plurality of nodes. Protocol independent connections can be made between any nodes on the ring.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qzw
7/20/2005

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